

Influence of Obstetric Factors(Presentation, Labor, and Modes of Delivery) on the Occurrence of Periventricular Intraventricular Hemorrhage (PIH) in Very Low Birth Weight Infants (VLBW)

S. Sun, V. Kamtorn, A. Bautista, A. Koons, R. Koenigsberger

There are reports in the literature that 1. premature rupture of membrane (PROM) increases mechanical trauma to fetal head, 2. prolonged labor of more than 6 hours and vaginal delivery may be associated with increased risk of PIH, 3. the very low birth weight infant delivered vaginally are significantly more acidotic and more likely to develop PIH, 4. the incidence of PIH is higher in breech than in vertex presentation even when all are delivered by Cesarean section.

The purpose of this study is to evaluate how the four selected obstetric factors (1. presentation, 2. duration of labor, 3. duration of rupture of membrane and 4. mode of delivery: vaginal vs C-section) independently or in combination affect the occurrence of PIH in VLBW infants.

Material & Method: During a two year period (1980-1982), 139 consecutive NICU admissions of infants with birth weight of less than 1500 gm were included in the study. All infants had real time echoencephalographic study using ATL Mark III on admission, daily for 7 days and twice weekly thereafter until discharge. The information regarding above mentioned 4 obstetric factors was obtained from maternal records or directly from obstetricians involved in the cases.

Result

Relation of duration of PROM and PIH in Vaginal Delivery: Table I

In the extremely LBW group (BW 500-1000 gm), there was significantly decreased incidence of PIH if the infant was delivered vaginally within 60 minutes of rupture of membrane compared to those delivered after 60 minutes of ROM. This difference was not demonstrable in larger birth weight group of infants over 1000 gm.

Relation of modes of delivery and PIH: Table II

There was no difference in the frequency of PIH between infants delivered vaginally and those delivered by C-section with labor. But there was a significant difference in the outcome (PIH) between the two modes of delivery if labor was absent in C-section.

Relation of presentation and PIH

There was no difference in the outcome (PIH) of infants between vertex and breech presentation in either C-section or vaginal delivery.

Relation of combination of 4 factors and PIH

In view of the multifactorial nature of PIH, a stepwise discriminant analysis of the above mentioned 4 obstetric factors was performed to find out which one was more influential than the others in the pathogenesis of PIH. The result revealed that the duration of ROM was the most important discriminant factor among all.

Conclusion: Favorable factors for not developing PIH may include the combination of the following: 1. membrane intact until last minutes of delivery, 2. no labor, 3. cesarean section.

Table I. Effect Of ROM On IVH In VLBW Infants (Vaginal Delivery)

	<u>ROM<60Min</u>		<u>ROM>60 Min</u>		<u>x²</u>	<u>P</u>
B.W. (gm)	No.	IVH(%)	No.	IVH(%)		
500-1000	28	12(42)	12	10(83)	4.05	<0.05
1000-1500	27	4(15)	29	9(31)	1.25	NS

Table II. Modes of Delivery and PIH

<u>Vaginal</u>		<u>C/S with labor</u>		<u>C/S no labor</u>
No.	96	29		14
IVH	48(50%)	13(45%)	NS	2(14%) P<0.05

Address: S. Sun, MD Associate Professor of Pediatrics,
UMD-New Jersey Medical School, Children's Hospital of
New Jersey, 15 South 9th Street, Newark, New Jersey,
07107. USA